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The precipitation event was recorded at stream gage E025 in Los Alamos Canyon, where at 16:25 on the afternoon of September 8, a maximum flow of 9.8 cfs was recorded. A small amount of flow from the release of water from Los Alamos Canyon reservoir diminished through September 8 until runoff from the precipitation event was recorded from about 15:00 to 17:00 hours. The flow at gage E025 was not sufficient to trip the automatic sampling device on September 8. However, several days after the precipitation event, on September 11 and 12, 2000, water was released from the reservoir at a rate sufficient to be recorded at gage E025. The hydrograph of flow at gage E025 in Los Alamos Canyon is for September 11 and 12, 2000 resulting from the release of water from the reservoir is shown in Figure 2.

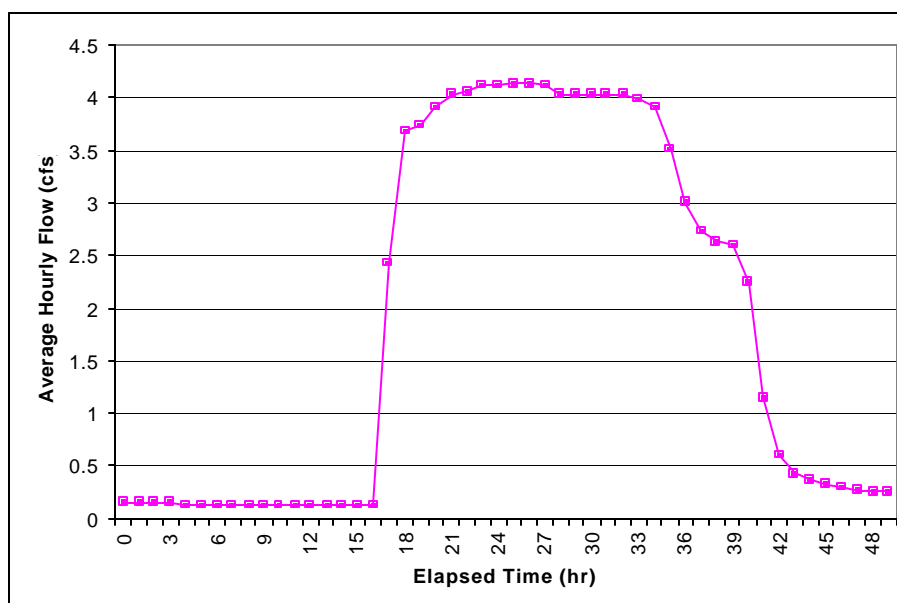


Figure 2. Hydrograph of Flow in Los Alamos Canyon at E025 on September 11 and 12, 2000

Manual (grab) surface water samples were collected at the site of gage E025 during the release event at 10:07 and 10:10 on the morning of September 12, 2000. Unfiltered and filtered samples were collected for analysis. The samples were sent to General Engineering Laboratories, Inc. in Charleston, South Carolina for analysis for radionuclides, metals, general inorganic constituents, VOCs, SVOCs, PCBs, HE, and Furans/Dioxins. Preliminary results of the available analyses for radionuclides are shown in Table 1. Also shown on Table 1 are the maximum values of constituents that have been recorded previous to the Cerro Grande Fire in unfiltered stormwater runoff at LANL (1995 through 1999), the DOE Public Dose Derived Concentration Guides (DCGs), and the Environmental Restoration Project's Ecological Screening Level (ESL) for water, for comparison purposes. Results of gamma spectroscopy are reported only for Cs-137 and other radionuclides that were detected in concentrations above the laboratory method detection limit.

A summary of the preliminary results of the analyses is shown in Figure 3. The results are compared with the historic maximum values obtained for unfiltered runoff and the DOE DCGs and the ESLs.

The unfiltered runoff sample collected on Sept 8, 2000 contained 221 mg/L total suspended solids (TSS). Based on this sediment concentration and the difference of activity of radionuclides measured of the unfiltered water and the filtered water samples, the concentrations of the radionuclides in the suspended sediment fraction of the runoff samples were calculated. These calculated values are also shown on Table 1.

The background values (BVs) that have been determined for stream sediments at Los Alamos National Laboratory (Ryti et al. 1998) and the calculated residential screening level (RSL) or soil for each radionuclide are also shown on Table 1. The RSL values were derived using DOE's RESRAD code and are based on a dose limit of 10 mrem/yr, which is less than the DOE free-release dose limit of 15 mrem/yr (LANL 2000). The maximum value of radionuclide concentrations observed in ash and muck sediment samples collected in June after precipitation events by the LANL ER Project are also shown on Table 1 (LANL 2000). The BVs for stream sediments, the RSLs, and the maximum ash and muck values are provided as a comparison for the results of the calculated activities of radionuclides in the suspended sediment fraction of the runoff samples. Suspended sediments in runoff samples are typically finer-grained than stream sediment samples; some radionuclides have been found to be preferentially located in finer grained sediments so direct comparison of the suspended sediment fraction of runoff samples with stream sediment BVs may not be appropriate, but the BVs, RSLs, and maximum values of ash and muck samples are provided here for reference and comparison.

The radionuclide results obtained to date for the samples collected from Los Alamos Canyon at E025 are below the historic pre-fire maximum values and are below DOE DCG and ESL values for each analyte result obtained to date for both the filtered and unfiltered samples. The calculated radionuclide concentrations in the suspended sediment fraction of the samples are above BVs for each analyte available based on preliminary results of gamma spectroscopy. The calculated concentration of Cs-137 in sediment is 10.036 pCi/g, above the RSL of 5.1 pCi/g and above the ash and muck maximum value of 5.16 pCi/g.

References

Los Alamos National Laboratory (LANL), 2000, "Post-Cerro Grande Fire Environmental Sampling Data: Baseline Ash and Muck Samples," Environmental Restoration (ER) Project report LA-UR 00-4362, September 2000, ER2000-0485. Preliminary data also presented on LANL ER Web site located at <http://erproject.lanl.gov/Fire/Data/datahome.html>

Ryti, R. T., P. A. Longmire, D. E. Broxton, S. L. Reneau, and E. V. McDonald, September 1998, "Inorganic and Radionuclide Background Data for Soils, Sediments and Bandelier Tuff at Los Alamos National Laboratory," Los Alamos National Laboratory Report LA-UR-98-4847. (Ryti et al. 1998, 59730)

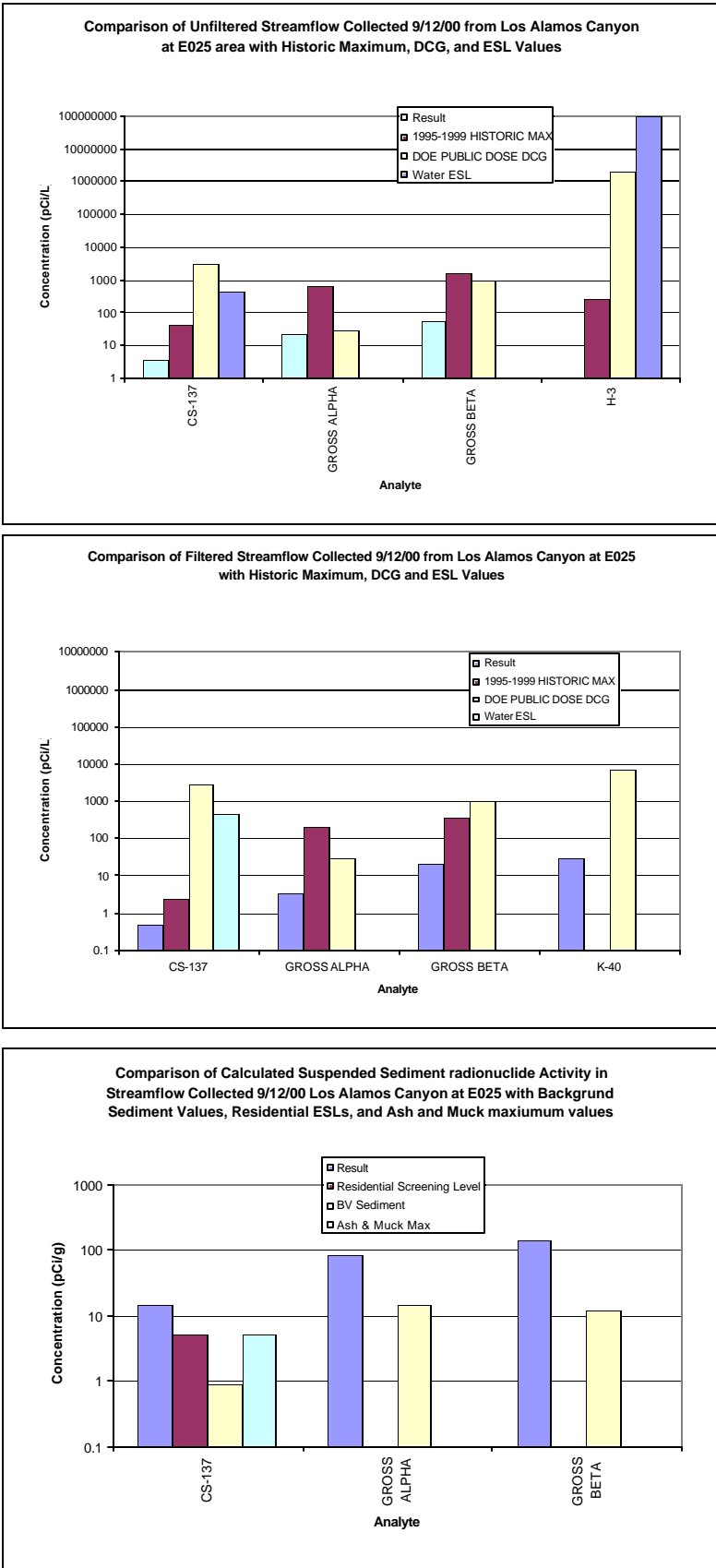


Figure 3. Comparison of runoff samples collected 9/12/00 in Los Alamos Canyon at E025 with Historic Maximum and DCG Values